THE EFFECTS OF THE DROUGHT ON THE BEEF ENTERPRISE IN WESTERN KANSAS, 1952-1957

by

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TABLE OF CONTENTS

Page

THE PROBLEM AND OBJECTIVES..... 1

PROCEDURE..... 3

GROUPS AND REASONS FOR GROUPING..... 3

ANALYSIS..... 5

Size Of Farm..... 5

Problems Of Handling Cattle During Drought Period..... 6

Changes In Animal Units..... 9

Reasons For Changing Cattle Numbers..... 11

Changes In Cattle Systems..... 13

Reasons For Changing Cattle Systems..... 14

Reasons For Not Making Any Major Changes..... 14

Methods Used To Adjust Cattle Numbers..... 17

Methods Used To Adjust Feed Supply..... 19

The Effect Of Tenure..... 22

Changes In Animal Units And Pasture Condition..... 24

Irrigation Of Feed Crops..... 24

Age Of Farmer In Beef System..... 25

The Education Of Farmer In The Beef System..... 25

The Experience Of Farmer In Beef Enterprise..... 25

Reasons For Keeping Cowherd Through Drought..... 25

Factors Influencing The Choice Of A Beef System..... 28

SUMMARY..... 31

ACKNOWLEDGMENTS..... 35

LITERATURE CITED..... 36

APPENDIX..... 37

THE PROBLEM AND OBJECTIVES

When the year to year production of feed fluctuates, the farmer with a beef enterprise must adapt to the situation. A drought period represents a period when there is considerable reduction in feed production. This was the situation studied by a survey made in 1957 of 173 farmers in 10 western Kansas counties. The period of time studied was from 1952 to 1957.

This was a study comparing the changes made by farmers in the various beef systems during the drought. Fluctuations in feed supply were expected to explain in large part the changes in beef cattle numbers and systems for the period.

The production of roughages (alfalfa hay, other hay, sorghum fodder, sorghum silage) ranged from a low of 228 thousand tons in 1952 to 508 thousand tons in 1957 in the 10 county area.[1] (Figures 1 and 2) The average was 349 thousand tons. The high in 1957 represents a 222.6 percent increase in feed production over the low in 1952. The increase between 1952 and 1957 was not uniform. Roughage production fluctuated drastically between 1955 and 1957. (Figure 1)

The acute feed problem can best be illustrated by the fluctuation in roughage production between 1955 and 1957. In 1955, production reached a high of 447 thousand tons. In 1956, production decreased to 247 thousand tons which was only 55 percent of the production in 1955. Production in 1957 increased to 508 thousand tons, an increase of 206 percent over 1956.

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[1] Kansas Agriculture, Biennial Reports 38, 39, 40 and 41, Kansas State Board of Agriculture.

Fluctuations in feed grain (corn, oats, barley, grain sorghum) production were greater than in roughage production. The range was 68 thousand tons in 1952 to 792 thousand tons in 1957, averaging 243 thousand tons for the area during these years. One peak was established in 1954 with 226 thousand tons. Production decreased until 1956 when a near low of 104 thousand tons were produced. This was 42 percent of the 1954 level of production. Production reached a record high in 1957 when it increased to 762 percent greater than the amount produced in 1956. (Figure 1)

The feed problem in 1956 was acute. In 1955 cattle numbers were at a high for the period, and the following year feed production was at a near low. This made necessary major adjustments in farm organization and, in particular, in cattle numbers on many farms.

During the drought the farmers were faced with either of two basic adjustments. Either they adjusted their beef system to meet the feed supply. Many farmers used both of these adjustments. The adjustments necessary constituted a cost to the farmer. Those who could make the least costly adjustments were in the most favorable position. The role of the farm manager was to make those adjustments, which over time, would represent the least cost in accord with his primary motives.

There were three objectives in this study: (a) to determine the changes made in cattle numbers by farmers in the principal beef systems from 1952-1957, (b) to determine the principal reasons causing the changes in cattle numbers, and (c) to determine why farmers choose a particular type of beef system.

PROCEDURE

Responses were obtained from 173 farmers from ten counties. The counties and the number of farmers in it who were surveyed were: Clark, 24; Comanche, 18; Finney, five; Ford, 21; Gove, 23; Hodgeman, 28; Lane, six; Ness, 25; Scott, 13; and Thomas, 10.

Farmers were selected from a random stratified sample. The survey was designed to study an equal number of farmers in each type of system. It was not designed to determine the number of farmers in each group. Problems were encountered finding enough farmers in each system. A sample of 15 operators together with an alternate sample of 15 were drawn for each system. When a schedule could not be obtained from a farmer of the initial sample on the first call back or if the farmer did not have the specified system, his closest alternate was taken.

Farmers were selected according to system for 1955, believed the last year that farmers had their normal number of cattle. The schedule and sampling pattern were designed to provide data of two types. These were, (a) input and output data for beef cattle and (b) the influence of the drought on beef cattle production. This specific study concentrates on an analysis of the data related to the influence of the drought.

GROUPS AND REASONS FOR GROUPING

For the purpose of this study, farmers were referred to as belonging to one of four principal groups: the cowherd group, the purchase group, the mixed group, and the changed system group. The first three groups represented distinctly different forms of the beef enterprise organization. The changed system group represented a type of adjustment rather than a system of handling cattle.

The cowherd group included those farmers who maintained a cowherd from year to year during the period 1952-1957. The cows raised the calves and the returns from the calves represented the returns to the investment. Investing in a cowherd type system was a relatively long run investment. The profitability of the investment was evaluated on the basis of the expected profits resulting from a series of calf crops over a period of several years. The purchase price or cost of obtaining the cows and the returns from selling the cows was not a major factor in determining the profitability of the herd. There were 89 farmers in this group.

The purchased group included those who made the year to year purchases of cattle during the period 1952-1957. The animals were bought for the explicit purpose of selling them at a profit. Normally a farmer followed a pattern of buying and selling the cattle, designed to meet his farm organization and expectations of profits. The investment in this type of system was a relatively short run investment. The returns to the investment, either positive or negative, were the profit or loss realized when the animal was sold. The operator had the opportunity to evaluate the profitability of the investment each year. Profits were determined by the returns from sale minus the purchase cost and cost of gain. The expected prices of cattle and feed supply were the primary factors determining the feasibility of the investment. The investment did not include a series of returns. There were 46 farmers in this group.

In this study long run investments are defined as those where a series of returns exist over a period of several years. Short run investments are defined as those where the returns are realized when the capital asset is sold.

The mixed group included those farmers having both a cowherd system and a purchase system during the period 1952-1957. As there were only four farmers

in it, little could be learned by studying this group.

The changed system group included 38 farmers who made a change in their system of handling cattle during the period 1952-1957. The farmers with cowherds could change by selling the cowherd system and initiate a purchase system or by adding a purchase system to his cowherd system. This change was defined as the change toward a purchase system. Farmers with purchased type systems could change by selling the purchased cattle and initiating a cowherd type system or by adding a cowherd to the purchase system. This change was defined as a change toward a cowherd group.

The farmers were classified in this manner for a definite purpose. It was hypothesized that the farmers in the different groups would react differently to conditions necessitating adjustments. The purchased group was considered the most flexible because they were in a position to evaluate the profitability of making an investment each year. This would be influenced by prices and feed supply and they would attempt to adjust cattle numbers to the feed supply. The cowherd was considered less flexible because the initial investment had already been made. They did not have the opportunity to evaluate the profitability of making the investment each year. Their decision was whether or not to continue operating the investment. This would be influenced by expected returns versus the cost of maintaining the cowherd. The farmers with cowherds would attempt to adjust feed supply to maintain an established herd.

ANALYSIS

Size of Farm

There is considerable difference in the size of farms in the different beef enterprise groups. (Table 1) The farmers with the cowherd system had the

largest average total acres of land and the largest average pasture size. Farm size by groups ranged from a high of 2043.1 acres for the cowherd group to 1235 acres for the mixed group. The purchased group had an average of 1326.5 total acres. The pasture size ranged from an average of 1258 acres for the cowherd group to 592 acres for the purchased group. With the largest pasture acreage, the cowherd group also had the largest average size herd. The cowherd group pastured an average of 90.7 animal units compared with 60.8 for the purchased group.

An animal unit was a unit of measurement used to equate various sizes and classes of animals to a common denominator. A cow with a calf represented one animal unit. Other classes of cattle were scaled proportionately to feed requirements.

There was considerable difference in total acres of pasture acres between the cowherd and purchase groups, but acres of cropland are much nearer equal. The average acres of cropland for the cowherd group was 805.1 acres compared with 734.5 acres for the purchase group. The pasture-cropland acreage ratio was 1.56:1 for farms with cowherds and was .81:1 for the purchased cattle group.

Problems Of Handling Cattle During Drought Period

Each farmer was asked to state and rank in order of importance his major problem in handling cattle during the period 1952-1957. This was an unstructured question, where the farmers were asked to state their problems without guidance from the enumerator. The farmer did this for both his first major beef system and also for the last major beef system. (Table 2)

Stable Feed Supply. This was the most important problem for either the purchased or the cowherd group during the last major system. (Table 2) Farmers mentioned it more often for the last major system than for the first major system.

For the cowherd and the purchased group, the first major system and the last major system were necessarily the same. The results indicated that this problem became important to more farmers due to the effect of the drought.

A stable feed supply was important to a greater percentage of cowherd farmers than to the farmers in the purchased group. It was a major problem for 56.6 percent of the farmers during the initial years of the drought period and it increased to where it was a problem for 75 percent of the farmers during the last year of the period. For the purchased group, only 26.7 percent of the farmers mentioned it as a problem during the early years of the drought and 44.5 percent mentioned it for the latter part of the drought. In any given year the farmers with cowherds had the desire to maintain an established herd. This would require relatively stable feed supply from year to year. The problem of having a stable feed supply was more important to the cowherd group than to the purchased group.

For those farmers who changed toward the purchase system, it was mentioned by 39.2 percent of the farmers when they had the cowherd system and by 46.9 percent of the farmers when they had the purchased system. These farmers had the purchased system during the latter period of the drought. The increase in the number of times farmers mentioned the problem shows partly the effects of the drought and partly the change in the system of handling cattle. The increase in the percent of farmers who mentioned the problem between the first and last major system, was less for the changed system group than for other groups.

Price Risk. In either the first or last major system, this was a problem to a greater percent of the farmers purchasing cattle than to those who had cowherds. (Table 2) In either group the percent of farmers who mentioned it decreased because of the increase in importance of having a stable feed supply. The number of times this problem was mentioned increased when farmers changed from a cowherd to a purchased type system.

Production Problems. Problems related to the production of beef are different for the various beef systems. Their specific problems were not recorded. It was mentioned less frequently by farmers with cowherds than by those who purchased cattle. (Table 2) The number of farmers who mentioned the problem decreased as farmers changed from the cowherd group to the purchased group.

In the cowherd group the number of farmers who mentioned this problem was rather insignificant compared to the number who faced the problem of providing a stable feed supply. In the purchased group relatively more farmers were concerned with the problems of production.

Labor Supply. This problem was mentioned by 8.4 percent of the farmers with cowherds for the initial period of the drought and 6.8 percent for the latter part of the period. The purchased group did not mention it at all. Only a small number of those who changed from a cowherd to a purchased group mentioned it. (Table 2)

Obtaining Credit. This problem did not receive any first ranking for either the first major system or the last major system by any of the groups. (Table 2)

Buying Cattle. This problem was not mentioned by farmers having the cowherd system. For the purchased group it was mentioned by 13 percent of the farmers for the first major system and by 8.9 percent for the last major system. For those farmers whose first system was a cowherd and whose last system a purchased system the number of farmers who mentioned the problem increased. The percentages for this problem was 3.6 and 15.6 respectively.

Summary. To the farmers in the cowherd group, the major problem was maintaining a stable feed supply. The ability to maintain a stable quantity of feed produced was essential to maintain the investment in the cowherd. The problem was not as important to the purchased group because they were in a more favorable

position to adjust their cattle numbers to the feed supply.

The problem of price risk is greater to the purchased group than it is to the cowherd group. This is due to the nature of the enterprise.

Changes In Animal Units

Farmers had three alternative adjustments they could make with respect to the number of their animal units. They could increase, decrease, or make no change in the number of animal units. For the purposes of this study the groups were divided in this manner. Those who made no major change in animal units were those who made no change in animal units plus those who increased or decreased numbers by less than 10 percent. A major increase in animal units constituted an increase of 10 percent or more. A major decrease was a decrease in animal units of 10 percent or more. The changes made were studied as a year to year change for each group.

Cowherd Group. The number of farmers who made a major reduction in animal units increased steadily throughout the period 1952-1957. (Table 4) The bulk of the reduction occurred during the year 1956. In any year there would always be some farmers that would reduce the cattle numbers as they did in 1952 when 5.3 percent of the cowherd farmers reduced their cattle numbers.

The number of farmers who increased the herd reached a peak in 1954 when 18.3 percent of the farmers increased their herd. (Table 7) After 1954 there were fewer farmers increasing herd size and only 9.3 percent of the farmers made a major increase in 1956.

The number of farmers that did not make a major change in cattle numbers or in system was the greatest in 1953 with 71.4 percent of the farmers essentially making no change, but for 1952 the percentage (70.2) was about the same. (Table 8)

Purchased Group. The number of farmers who reduced the number of animal units increased from 13 percent in 1952 to 49 percent in 1955 and then decreased to 39.7 percent in 1956. (Table 4) This trend was different from the cowherd system. They adjusted sooner, as expected.

The number of times farmers increased their animal units reached a peak in 1955, when 26.9 percent of the farmers increased their herds. (Table 7) It declined to 15.6 percent in 1956 and a previous low was 12.2 percent in 1953.

The number of farmers who made no major change, in either the system or in cattle numbers, decreased as the drought progressed. In 1953, 59.2 percent made no major change whereas in 1956 only 15.5 percent made no major change. (Table 8)

There were certain differences between the cowherd and the purchased groups. The purchase group reduced their cattle numbers sooner and more often than did the cowherd group. In 1955, 33.4 percent of the cowherd group reduced numbers compared with 49.2 percent in the purchase group. (Table 4) In 1956, 60.0 percent of the farmers in the cowherd group reduced and only 39.7 percent of the farmers in the purchased group reduced numbers.

The percent of farmers who increased their cattle numbers was greater, in any given year, for the purchased group than for the cowherd group. (Table 7)

For any year, the percent of the farmers who made no major changes was always less for the purchased group than for the cowherd group. (Table 8) This is evidence that the purchased group is more readily changed with respect to cattle numbers than is the cowherd group. In the cowherd group there were two periods when most of the farmers made changes. From 1953 to 1954, the number of farmers who made no major change declined from 71.4 percent to 54.1 percent. Again in 1955 to 1956, the number declined from 49.5 percent to 23.7 percent. In the purchased group only one period occurs when there is a great decrease in

the number of farmers who made no major change. From 1954 to 1955 the percentage decreased from 52.8 percent to 20.9 percent.

Summary. Most of the changes made by the cowherd group came during the latter period of the drought. They were relatively stable during the initial period of the drought. As the drought continued through 1955, they were quite successful in retaining their herds and a stable number of cattle. For the year 1956, most of the farmers reduced their cattle numbers and several sold the herd.

The purchased group was the more dynamic group, making more changes in any year than the cowherd group. They decreased their animal units earlier in the drought period than did the cowherd group. The purchased group was more flexible and easier to adjust to the fluctuation in feed supply.

Reasons For Changing Cattle Numbers

Farmers were asked to list the principal reasons for making a major change in cattle numbers or in system during the period 1952-1957. The reasons were listed by year. Farmers were allowed to list more than one reason, and many of them did. Therefore, whenever the phrase "percent of the total number of changes" is used, it is not the same as the percent of the total number of farmers. The percent of the total number of reasons was obtained as follows. First, the total for each reason was obtained for the five year period. Then one grand total was obtained by adding the separate totals under each reason. The percent means what portion is the total under each reason of the grand total.

This was another unstructured question and the farmers were asked to give reasons without any prompting from the enumerator.

Cowherd Group. Thirteen reasons were given as being responsible for a

major decrease in cattle numbers. (Table 9) Four reasons, pasture, roughage production, grain production, and the price of feed were listed 93.7 percent of the time. In general, feed meaning pasture, roughage and grain, accounted for 79.1 percent of the total number of reasons given. There was a big increase in the number of times feed was indicated as a problem during 1955 and 1956. This accounts for the reason why so many farmers reduced their herd size during this time.

Ten reasons were given as being responsible for an increase in cattle numbers. (Table 10) Four reasons, pasture, roughage production, grain production, and the desire to rebuild the herd made up 81.5 percent of the total number of times reasons where given. In contrast with the previous group, the price of feed was not mentioned, but the desire to rebuild the herd, a new factor, was introduced. Pasture, roughage production, and grain supply accounted for 61.2 percent of the total number of reasons.

In 1954 more farmers increased their herd than in any other year. The reason most frequently mentioned was the desire to rebuild the herd. Feed production was relatively favorable in 1954 and this may reflect the attempt to increase the number of cattle to use the available feed supply. (Figure 1)

Purchased Group. Nine reasons were given why they decreased their cattle numbers (Table 11) Five reasons, pasture, roughage production, grain production, price of feed, and price of cattle made up 92.7 percent of the total number of times reasons were given. The feed supply, pasture, roughage, and grain, contributed 72.7 percent of the reasons. Price of cattle and cost of feed contributed ten percent of the reasons.

Nine factors were listed as important reasons causing an increase in cattle numbers. (Table 12) Pasture, roughage production and grain production con-

tributed 71.0 percent of the total number of reasons given.

Summary. In the purchased group the major reasons for increasing or decreasing cattle numbers are the same. The crucial factors were feed supply and the prices of cattle or feed. Of these, feed supply was the dominant factor. This supports the original hypothesis that the purchased group would make changes in accordance with the feed supply.

In the cowherd group the reasons for increasing and decreasing are different. The major reason causing a decrease in cattle numbers was the feed supply. Considering the major reductions in cattle numbers occurred during 1955 and 1956, this would indicate that they were forced to sell because of inadequate feed supply. Their efforts to supply feed and maintain the cowherd failed.

The two major reasons why cattle numbers in the cowherd group were increased were the pasture condition and the desire to rebuild the herd. These farmers had the tendency to adjust to the capacity of the pasture, and used feed crops to supplement the pasture. This group had large acreages of pasture and it was a major portion of the feed supply for the cows. The size of the investment was limited by the amount of pasture available on the farm. After the size of herd had been established, the farmers had the desire to maintain it.

Changes In Cattle Systems

There were 38 farmers in the group who made major changes in handling cattle and they made 52 changes during the period 1952-1957. (Table 5) Most of the changes occurred in 1954 when 19 or 36.6 percent of the changes were made. Changes were listed by year and therefore a farmer could make more than one change during the period. The total number of changes made in the direction of acquiring a purchase system or by adding a purchase system accounted for 76 per-

cent of the total, leaving 24 percent of the change made in the direction of acquiring or adding the cowherd.

Reasons For Changing Cattle Systems

Farmers were allowed to give several reasons, and they were listed by year going from 1952-1957. However, the reasons for the individual years were not considered, only the totals for the period.

Changing Toward A Purchase Group. The four most important reasons for causing a change were pasture, roughage, grain production and the price of feed. (Table 13) They account for 66.7 percent of the total number of reasons given. Pasture was given most frequently, being mentioned 25 percent of the total.

The inability to maintain the stable feed supply required by the cowherd, caused the change in system to the purchase group.

It is difficult to explain why 8.3 percent of the reasons for a change was due to price of cattle, as it was seldom mentioned as a problem by the cowherd group in tables 9 and 10.

Changing To Cowherd Group. The number of farmers changing and the number of reasons given were small. (Table 14)

Reason For Not Making Any Major Changes

If the farmer had not made a major change in cattle numbers or had not changed his system of handling cattle, he was asked for the reason why such changes were avoided. Sixteen farmers with cowherd and ten with purchase system reported reasons. (Table 15) The six reasons given could be categorized as increasing or stabilizing the feed supply.

Irrigation. This method was mentioned most frequently, 38.4 percent of the

total number of times reasons were given. It is the most effective method of reducing the uncertainty of feed production.

It has a natural limitation in that a sufficient water supply may not be available at a cost which is economically feasible. If water is available to be used on the farm it must also be located where the farmer is able to use it.

The capital limitation to applying an irrigation system may also prevent its use. An irrigation system requires considerable capital investment. This capital may not be available to the farmer who has the available water supply.

A farmer must evaluate the cost of irrigation versus the expected returns and also the alternative choices for such a financial investment. It would not be economical for a farmer to invest in an irrigation system if the costs were greater than the expected returns during the intended period when irrigation was to be used. With resources available for investment, the farmer should weigh carefully the alternative investments available. To gain the most profit from his money he must invest where the expected returns over cost are the greatest.

Purchasing Feed. This method was used by both groups to about the same extent. It was an important method, being mentioned 19.2 percent of the time, (Table 15) but not as important as irrigation.

The limitations to this method are the cost of feed and the capital limitation of the individual.

The expected returns from the use of purchased feed must be equal to or greater than the cost of purchasing feed. The manager has the problem of evaluating future returns which in the case of the cowherd may extend into the future for several years.

Even if the farmer decides that it is profitable to purchase feed, credit or the capital must be available to the farmer. However, only in a few instances did the farmers indicate that the availability of credit or capital was a

limitation.

Not Operating At Capacity. Five farmers, or 19.2 percent, and four of these were from the cowherd, made use of this method. (Table 15) Some farmers may not operate at capacity during good years so that they do not have too much livestock during poor years.

It is difficult to determine exactly the pasture acre per cow ratio a farmer would have to maintain during good years so that he would be able to maintain a certain size herd throughout all conditions. From table 16, we noted that in 1957, the average pasture acre per cow ratio was 14 to 1 and in 1952 the ratio was 7.7 to 1. From this it was concluded that the farmer might have to operate at somewhere near one-half capacity during the good pasture years to maintain a stable herd size. This represents considerable cost for the sake of maintaining a stable cowherd. However, pasture alone does not measure total capacity. Feed production was also an important factor in determining the capacity of the farm.

This factor is limited not only from a cost standpoint, but also in that the capacity of the farm during the drought is uncertain. The capacity is a function of the amount of feed produced and the ration or amount fed each animal.

Feed Reserves. This method was used the least of those mentioned. (Table 15)

The majority of farmers did say that they could afford to maintain feed reserves through a period as 1952-1957. (Table 17) However, they were faced with the problem of ever producing a surplus great enough to carry them through, or they faced a storage problem. (Tables 18 and 19) The storage problem is closely related to the production problem. A surplus feed producing year occurs rather infrequently and when it does it may be of such proportions as to create a storage problem. The year 1957 is an example, Figure 1.

Rent Pasture In Other Area. This method was mentioned three times. (Table 15)

The limitations to this method would be the availability of the pasture, the distance from the farm, the cost of maintaining the enterprise away from home, and the cost of the inconvenience.

Methods Used To Adjust Cattle Numbers

Five methods were given of which four were used solely by the cowherd group. These four represent varying degrees of effectiveness to maintain the investment and to prevent a sale at an unfavorable price. The adjustments constituted a cost and the farmers would choose that adjustment which was the least costly to them.

Sell All Of The Cowherd. This was the most costly adjustment the cowherd group had to make. This usually meant that the investment had to be sold at an unfavorable price and before all the expected returns had been realized.

Sixteen farmers, or 21.3 percent, were forced to sell the cowherd or to decrease it to an insignificant number. (Table 20)

Sell Some Good Cows As Well As Culls. The selling of some good cows was the next most costly adjustment. This represents a scarifice of many years of good breeding practices or the loss of a high cost animal. During the drought period, the good cows usually were sold on a market where the price was established by the slaughter market. These cows were usually sold on an unfavorable market.

Fifty-six farmers, or 75.7 percent, in the cowherd group were forced to sell some of their good cows. (Table 20) It was used more extensively by those who decreased cattle numbers than by those who went out of the cattle business. To these farmers the less costly adjustments weren't enough. The inability to maintain a stable feed supply forced these farmers to sell some of their good cows.

Cull Cowherd Closer Than Usual. This was one of the milder or less costly

adjustments which the cowherd group could make. There was a tendency for farmers to keep cattle of any quality when prices were favorable and when feed supply permited. To sell the cull cows when feed supply becomes short represented a good management practice. However, this adjustment was more than a normal culling of cows and as such it did represent a cost to the farmer.

Sixty-four farmers, 84.2 percent, in the cowherd group used this method. It was used more by those who decreased their cattle numbers than by those who went out of the cattle business. (Table 20)

Sell Other Cattle At An Earlier Age Or Lower Weight. This was the adjustment which represented the least cost. To most farmers this meant selling their calves at an earlier age or lower weight. The feed saved by selling calves earlier or at lower weight might be sufficient to enable the farmer to maintain the basic herd.

Only 24 farmers, 33.3 percent, used this method.

Most of the farmers used more than one method of adjusting their cattle numbers. As the drought progressed, the farmers were forced into making the more costly type of adjustments. It finally forced 16 farmers to go all the way and sell their herd.

Stayed Out Of Cattle Market When Feed Supply Was Short. Due to the nature of the business, this was the only adjustment the purchase group made. It does not represent a cost in the same way as did the adjustments in the cowherd group. The decision to adjust was based upon expected profits. The adjustment would have no affect upon previous investments.

This method was used by 60.5 percent of the farmers. Due to the uncertainty of feed supply, these farmers evaluated the cost as greater than the profit and they choose to stay out of the cattle market.

Methods Used To Adjust Feed Supply

Providing a stable feed supply was the most important problem for all the farmers in the area. Fluctuations in feed supply caused most farmers to make some adjustment in their cattle numbers. Many farmers were definitely interested in maintaining their cattle enterprise and to do this some adjustments in the feed supply were necessary.

In the cowherd group, 97.7 percent of the farmers were forced to adjust feed supply and in the purchase group 97.8 percent adjusted feed supply. Eight methods of adjusting feed supply were used. Many farmers used more than one method.

Buy Additional Feed. This method was mentioned most frequently by both groups, cowherd and purchased. It was used to its greatest extent by the cowherd group. Figure 3 shows the difference between the feed bought by the two groups. On a per farm average the cowherd group always bought more feed during the period than the purchased group. The cowherd group purchased more than five times as much feed in 1956 as they did in 1952. Meanwhile the purchased group increased their purchases of feed only about twice the amount purchased in 1952. Not only did the cowherd group use this method more often, but the farmers bought greater quantities of feed. This was some indication of how important it was to the farmer to adjust the feed supply to maintain his cowherd.

It is difficult to determine just how effective this method was in stabilizing the animal units in the cowherd group. All four classes used it extensively leaving very little indication as to its effect upon the change in animal units. (Table 21)

This method could have been very effective in stabilizing feed supply and cattle numbers. Its effectiveness would depend upon the quantity purchased and

this would depend upon the availability and price of feed.

The difference in the two groups in the use of this method illustrates that the cowherd group was more determined to adjust feed supply in an effort to maintain their herd.

Rent Additional Pasture. The extent to which additional pasture may be acquired is limited and as a result about the same proportion of farmers in either group were able to rent additional pasture. (Table 21) The degree to which this method was used did not depend upon the type of beef enterprise the farmer had.

In the cowherd group there was a relationship between renting additional pasture and the increasing of animal units which did not exist for the other groups. Forty two percent of the farmers who increased their animal units also rented additional pasture. This compares with 15 percent for those who decreased cattle numbers.

The relationship which was found in the cowherd group does not hold for the purchased group. (Table 21) The renting of additional pasture had little if any effect upon the adjustments in animal units. The proportion of farmers renting additional pasture are similar for all of the classes under the purchase group.

Use Of Feed Reserves. Some of the limitations to the use of feed reserves have already been discussed and these probably accounted for it being used by only 62 percent of the cowherd group and by 46 percent of the purchase group.

Within the cowherd group there was considerable distinction among the various groups. Of those who sold out, 54 percent indicated that they did not use feed reserves. Of those who decreased, 63 percent indicated that they did use feed reserves. This indicated that feed reserves were important in maintaining

the basic herd and that if feed reserves were not available the possibility that the herd would have to be sold was greater.

For operators with purchased cattle, 63 percent of those who decreased their animal units used feed reserves compared with 27 percent of those who sold out and 33 percent of those who increased animal units.

Sell Less Feed. Whenever a surplus of feed did exist the farmers were faced with the decision of what to do with it. Their alternatives were to feed it by increasing the amount fed each animal, increasing the number of animals, store and keep it as a reserve or to sell it. In the cowherd group 45 percent of the farmers stated that they sold less feed than normally. (Table 21)

It is difficult to explain why such a high percentage of either group indicated that they did not sell less feed than normally. One explanation might be that normally many of the farmers did not sell any feed so they responded negatively to the question.

Increasing Acreage Of Feed Crops. Next to the method of buying additional feed, this method of adjusting feed supply was mentioned most frequently. In the cowherd group 67 percent of the farmers indicated that they increased feed acreage. (Table 21) For the cowherd operator, those who decreased their animal units increased the acreage of feed crops more than those who sold out.

As a whole only 41 percent of the purchased group increased the acres devoted to feed crops. Within the purchased group the four classes appear to be very similar.

To increase the acreage of feed crops represented an increase in costs to the farmer. It was not specified from where the additional acres were diverted. A larger proportion of cowherd farmers than farmers with a purchased system paid the cost in an attempt to adjust feed supply to meet the needs of their system.

Grow Feed On Fallow Land Instead Of In Continuous Crop. Growing feed on fallow land will increase the per acre yield and will increase the probability of raising a feed crop in the area studied. It will stabilize the year to year production of feed. This method was used by 59 percent of the cowherd group and by 30 percent of the purchased group. A larger proportion of farmers with cowherds used this type of adjustment than did the farmers with purchased system.

Rent Crop Aftermath. The number of farmers using this method in either group were small. (Table 21) This may reflect its availability rather than its importance. Whenever it was available it may have been very important.

Irrigate Crops. The number of farmers using this method were so few that it was difficult to draw any inference. (Table 21) This must be due to its limitations with respect to the availability of water and capital rather than its effectiveness of increasing feed production.

Summary. Relatively more farmers in the cowherd group made an attempt to stabilize feed supply. It was essential for the purpose of maintaining the cowherd. In either group, most farmers used more than one type of adjustment, but on an average a farmer with a cowherd used more methods than did the farmer who purchased his cattle. As the cost of adjusting feed increased, the farmer with the purchased cattle adjusted his cattle numbers sooner than those who had cowherds.

The Effect Of Tenure

The form of tenure had an indirect influence upon the changes made by some of the farmers. There is very little difference between the cowherd group and the purchased group in tenure arrangement. (Table 22) There was some difference between the owners and part owners in the percent reduction in animal units of the cowherd group. More owners decreased or went out of the cattle business than

did part owners.

The reason for this may be explained in part on tables 23 and 24. The relationship between the change in animal units with the change in the total number of acres farmed, the following relationship existed. Eighty-three percent of those farmers who decreased animal units and 84.6 percent of those who sold out had made no change in the total number of acres farmed. This compares with 63 percent of the farmers increasing cattle numbers that made no change in total acres farmed.

By extending this study to the relationship between the form of tenure and the change in total acres farmed, the following relationship existed. Of the owners, 84.4 percent indicated that there had been no change in total acres farmed compared with 72.5 percent for the part owners and 75 percent for the tenants.

Those who could increase their size of farm were in a better position to stabilize their herd size. The part owners were in a better position to increase the size of their farm due to their farm organization. They were faced with fewer limitations. During the drought the part owners were in a more favorable position to stabilize cattle numbers.

It was not determined whether the change in the number of acres farmed was in cropland or in pasture land. In a previous section it was determined that the cowherd group did show a direct relationship between the increase in cattle numbers and an increase in pasture acreage. From this study it would seem reasonable to state that the relationship between the change in cattle numbers associated with the increase in acreage and part ownership was due to the ability of the part owner to increase pasture size more readily than the owner.

The relationship that existed in the cowherd group did not appear in the

purchased group.

Changes In Animal Units And Pasture Condition

In the study of the factors causing a change in number of animal units, pasture condition was listed as one of the principal factors. An attempt was made to determine what relationship, if any, existed between the pasture condition as the farmer saw them, and his change in animal units. (Tables 25 and 26)

As the year to year changes in pasture condition were studied in relation with the change in animal units for the cowherd group, it was difficult to ascertain consistent relationship. There were some years when those who increased animal units or made no change indicated that they may have had better pasture conditions than those who decreased, a year as 1952. There were years when the opposite relationship exists. The relationship that exists for the purchase group is very little better if any.

If only the farmers listing poor or no pasture condition are considered, it is possible to see more of a relationship, especially during the latter period of the drought. For those who indicated that they decreased their cattle numbers, a greater proportion listed poor or no pasture condition against those who indicated they had increased cattle numbers.

Irrigation Of Feed Crops

Irrigation was mentioned several times as being responsible for preventing a major change in animal units or a change of system. A study was made of the relationship between farmers change in animal units for the period 1952-1957 and the irrigation of feed crops. (Table 27)

In the cowherd group it does appear as though there may be some relationship.

Its principal effect may have been to stabilize the animal units rather than to increase them.

In the purchased group some relationship seems apparent. Here the effect was to increase animal units. Whenever price changes appear favorable, farmers will respond by increasing or continuing in the beef enterprise. Uncertainty of feed supply is no longer a limiting factor.

Age Of Farmer In Beef System

There was no apparent relationship between the age of the farmer and the changes they made in animal units. (Table 28) The age distribution appears to be very similar both in the cowherd and purchased groups.

The Education Of Farmer In The Beef System

The amount and type of education seems to be very evenly distributed between the two major groups and within a group. (Table 29) Formal education apparently did not affect the adjustments made in cattle numbers.

The Experience Of Farmer In Beef Enterprise

The amount of experience which the operator had acquired with a beef system did not appear to have any effect on how they made change in animal units. (Table 30) The purchased group as a whole appears to have had less experience than those in the cowherd group.

Reasons For Keeping Cowherd Through Drought

It was found that the farmers having the cowherd systems made fewer changes in animal units than those with purchase systems. An attempt was made to determine

the reasons why the cowherd group should have this tendency to make fewer changes. (Table 31)

The cowherd system is commonly referred to as being less flexible than a purchase system. Webster's dictionary defines flexible as anything "capable of being adapted or modified". The lack of changes made by the cowherd group cannot be explained by the strict interpretation of the term flexible. The adjustments in cattle numbers in either group were made at a cost to the farmer. The cost of adjusting the cowherds must have been more costly than to adjust the purchased system. All farmers had to choose between the costs of adjusting cattle number or the cost of adjusting their feed supply, or some combination of both types of adjustment. Most of the farmers were forced into making both types of adjustments and accepting both types of costs.

When asked whether the cowherd should be kept through a drought period as 1952-1957, 64.1 percent of the farmers with cowherds responded yes. Their reasons for keeping or for not keeping it are given in tables 31 and 32. Those who stated that a cowherd should be kept, based their decision on the relatively long run concept. If cows were to be sold, 39.2 percent of the farmers stated that it would be too costly to rebuild when the drought was over. The costs of adjustments were considered less than the cost to rebuild. Two reasons given, that the cows will be valuable later and that it is more profitable in the long run, are essentially the same, formed 23.5 percent of the total. Essentially the basis for keeping the cowherd through the drought was that the expected returns in the long run would more than compensate for the costs of keeping the cowherd.

Ninety-five percent of those who replied negatively to the question gave as their reason that it was too expensive to keep through the drought. These people considered the costs of making adjustments greater than the long run gains.

When a cowherd is purchased its profitability is determined by the operators subjective evaluation of future returns minus the purchase cost plus the expected maintainance costs. The purchase price may not be a principal factor. When a drought of such proportions as 1952-1957 hits the area and the manager is faced with major adjustments, prices of cattle may become very important. The drought has caused the maintainance costs to increase and the price of cows has decreased. Many farmers may not have had time to realize the major portion of their expected returns from their cowherd. Farmers were reluctant to sell their investment when feed supply and cattle prices were abnormally low because of drought conditions. He expected his investment to be more profitable again when more normal conditions would prevail.

The alternatives which confront the farmer are these. He may maintain the cowherd hoping that the long run returns after the drought ends, will more than compensate for the costs of maintaining the herd until feed supply is again plentiful. Or he may sell his herd deciding that the cost of maintaining the herd, short run costs, will be greater than the cost of repurchasing the cowherd at the end of the drought period. The entrepreneurs operate in a state of subjective uncertainty and they must make an evaluation of the estimated duration and intensity of the drought. Their activity is a function of their outlook for the future.

Most of the cowherd farmers had an optimistic attitude until 1956. As the feed and pasture condition continued to deteriorate, the farmers made an evaluation of the future. Many of them decided that the costs of keeping the cowherd were greater than the expected returns so they made major reductions in cattle numbers or they sold the herd.

The farmers who purchased their cattle are in a more favorable position for

making adjustments in cattle numbers. These farmers will respond to a shortage of feed supply, but they may purchase cattle even if they have insufficient feed, providing that the anticipated differential between buying and selling price is great enough to cover purchasing the feed cost. If prices are unfavorable they may not purchase cattle even if they have available feed.

During a drought farmers who purchase cattle have no opportunity to evaluate short run costs against long run returns. They are operating in a relatively short run time period. If short run costs are greater than the returns they have no feasible alternative but to take the loss and they will be faced with another short run decision the following season.

The decisions of the purchased group are a series of short run decisions. Each one is based upon current conditions, and terminates before the next one begins. Each one is independent of the others. The decision to purchase cowherds are relatively long run decisions, spanning several years, during which a drought may occur. A decision during one period may have lasting effects covering several years.

Factors Influencing The Choice Of A Beef System

An estimate of the number of farmers having either the cowherd or the purchase system was not made. In this area farmers were willing to invest in either system and they were aware of the chances and problems associated with a beef system. The general consensus is that in an area where there were such wide fluctuations in feed supply a beef system which is adapted to this condition would be preferred, other things being equal. Evidently farmers considered other factors when choosing to invest in a beef enterprise.

Farmers with cowherds listed ten reasons for keeping a cowherd and they ranked them in order of their importance. (Table 33) The most frequently mentioned

reason was that there was less risk of price or production loss. It was ranked first by 36.8 percent of the farmers. Three other major reasons and the number of times they were ranked first were, no problem of buying cattle, 16 percent; utilize pasture and roughages, 16 percent; and source of ready cash, 10 percent. The farmers were in the business to make a profit, but as an important factor it was mentioned explicitly only 2.3 percent of the time.

The reasons for keeping a purchased system were quite different. (Table 34) Of the six reasons given, two were ranked first by 90.7 percent of the farmers. The desire to make a greater profit was ranked first by 48.8 percent of the farmers. The desire to avoid the feed problem was nearly as important, and was listed first by 41.9 percent of these farmers.

The amount of capital invested in a beef system for a given size farm may be quite similar whether a purchased system or a cowherd system is kept. For a given size of investment, the risk of losing the equity in any one year is always greater for a purchased system than for a cowherd system. A change in cattle prices affects the purchased group to a greater extent than it will the cowherd group. The person who invests in a cowherd must expect that during some years prices will be unfavorable and he will have to accept a loss. The person who invests in a purchased system will invest only if he expects prices to be favorable. In the cowherd system, profits are determined from a series of returns whereas in the purchased system profits are determined on the basis of a single return to the investment.

Farmers having a cowherd system appeared to have a stronger aversion against price risk than did the purchased system operators. Some people are naturally more conservative than others in their attitude toward uncertainty. The fact that the cowherd group appears to be more risk conscious may be explained in part by

the psycological make up of the individual. It is probable that many people with this type of aversion gravitate toward a cowherd system.

The average pasture size for the cowherd group was 1258 acres with an average herd size of 91 animal units. (Table 1) For the purchased group the pasture size was 711 acres with a herd size of 61 animal units. If the cowherd group were to change from a cowherd system to a purchased system, their farms would accomodate 130 animal units.

It is reasonable to assume that most of the farmers in purchased systems borrow some money for the purchasing of livestock. Farmers with large herds borrow more than those with smaller herds. The principle of increasing risk states that as an entrepreneur expands by borrowing money, the chance of losing it increases. This means that farmers with larger herds would be more subject to the loss of equity than farmers with smaller herds. Having the larger size farm, the cowherd group was faced with this alternative: invest in a purchased group and accept the increased price risk due to the nature of the system and the size of the herd, but get the benefit of a lesser feed problem and more profit. They could also invest in a cowherd system and accept less profit, have a greater feed problem, but be subject to less price risk due to the nature of the system. The fact that they chose the latter would indicate that they were willing to sacrifice some profit and accept a greater feed problem for the sake of taking less risk.

So far this study has been under the influence of the assumption that the farmer was equally capable of managing either the cowherd of the purchased type system. This assumption is not valid.

The managerial requirements under the cowherd system are vastly different from those of the purchased system. The activity which they do have in common

is that of selling cattle. As was described the cowherd group procured its saleable product by raising it with a cowherd while the purchased group procures its saleable product by purchasing it in a market place. The cowherd operator is faced not only with the management of the calves but also with the management problems of the cowherd. The profitability of a cowherd system depends upon how well the operator manages his cowherd and the production of calves. Lack of managerial ability in raising the calves may not be compensated for by superior feeding and selling ability.

In the purchased group the buying of cattle was an intricate part of the system. If the individual did a poor job of buying cattle, his feeding and selling ability may not be able to compensate for this shortcoming.

To make the assumption that farmers had equal managerial ability to either enter the market place and buy cattle or to maintain a cowherd system and raise their calves is not valid. The reason why 16.1 percent of the farmers had a cowherd system was because they had no problem buying cattle. (Table 33) This would hinder these people in their management of a purchased system.

Whenever a budgeting technique is used to make a comparison of several systems, a certain level of management is assumed to be constant for every system. These farmers may have performed a budgeting process whereby they allowed for different levels of managerial ability for different systems. They may have chosen the most profitable system under the evaluation of their own managerial ability. There may have been cases where the cowherd farmer chose the cowherd system as the most profitable because he considered his ability to manage it superior to his ability to manage a purchased system.

SUMMARY

Fluctuation in feed production created the problem of making adjustments

in the organization of the farm. It required that the farmer adjust his feed supply or his cattle numbers. Either of these represented a cost to the farmer. The farmer strove for the optimum set of adjustments, the one or combination which would produce the necessary effect at least cost.

The hypothesis was that the cowherd group was less flexible than the purchased group and would tend to adjust feed supply to meet the needs of the system. The purchased group would be more flexible and would attempt to adjust their cattle numbers to the feed supply. This hypothesis was substantiated throughout the analysis.

Maintaining a stable feed supply was the major problem for all farmers during the drought. It was a greater problem for the farmers having cowherds than to the farmers who purchased cattle. Farmers used numerous methods in an effort to stabilize or adjust the feed supply. Irrigation, the most effective, was limited in usage due to cost of installation and lack of an available source of water. The use of feed reserves was limited because of the storage problem and the problem of producing a surplus. Most farmers increased the acreage of feed crops and many raised the feed on fallow ground. Most farmers used several of these adjustments, but the farmers with cowherd used more methods than did the farmers with the purchased cattle.

Whenever the feed adjustment became ineffective or too costly, the farmer had to adjust their cattle numbers. The feed problem was the most important reason causing the reduction in cattle numbers during the period studied. The methods used to adjust cattle numbers varied in their degree of cost and effectiveness. To sell their other cattle at a lower weight was a very mild adjustment and represented very little cost. Other methods were to cull the cowherd closer than usual and to sell some good cows as well as culls. If these methods

were not effective in meeting the problem, the farmer had to sell the entire herd. This was the most costly and the most severe adjustment.

The cowherd group, in any given year, made fewer major changes in their cattle numbers than did the purchased group. The major portion of the reductions in cattle numbers within the cowherd group occurred during 1956. In 1955 more farmers in the purchased group reduced cattle numbers than in any other year. The purchased group was the more dynamic group. They made more major changes, either increasing or decreasing, during any year than did the cowherd group. An exception was 1956 when 60 percent of the cowherd group made a major reduction and only 39.7 percent of the purchased group made a major reduction. The purchased group responded sooner to the acute feed problem than did the cowherd group.

The cowherd system tends to be less flexible for several reasons. The size of the herd tends to be established by some concept of the average cowherd capacity of the farm. After the investment has been made, farmers tend to protect it by adjusting feed supply to meet its requirements. It is a relatively long term investment based upon expected returns from the sale of the calves. To liquidate the investment during a drought period would be selling it at an unfavorable price and before all returns had been realized.

The purchased system is more flexible because the farmers have the opportunity to reinvest every year. Investments are made on the basis of expected profits to be realized when animals are sold. Feed supply will affect the profitability and therefore the purchased group has more of a tendency to adjust cattle numbers to the feed supply.

This study did not lend itself to static analysis. This would require that prices and the yields of crops be constant. During the drought crop yields were

not constant and this was essentially what made the two groups behave differently. To be able too get a complete picture of the behavior of the two groups the entire period must be examined.

The farmers had a variety of reasons for choosing a particular beef system. The purchased system was considered the most profitable, but it also entailed the greatest price risk. It also presented less of a feed problem. The cow-herd system was considered less profitable, but there was less price risk associated with it. It also presented the greater feed problem, but it presented no problem of buying cattle. The motive of a personal preference was seldom mentioned. It is believed that this motive was a stronger influence in choosing a cattle system than was indicated.

ACKNOWLEDGMENTS

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APPENDIX

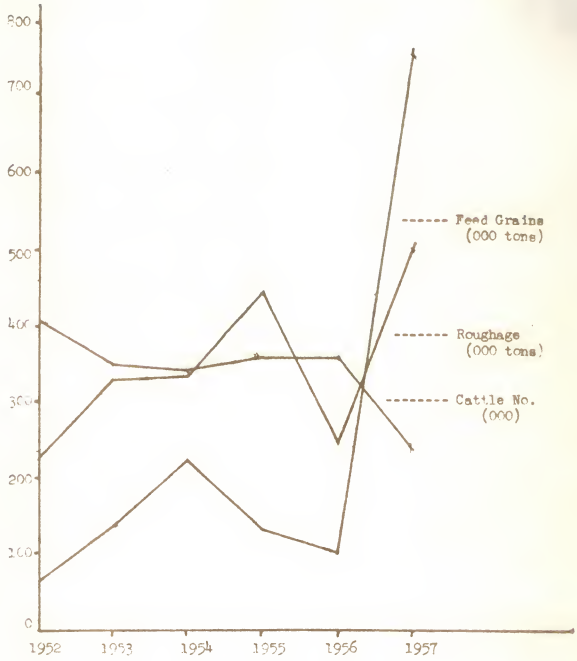

Figure 1. Feed production and cattle numbers in the ten county areas from 1952-1957. Feed grains include corn, oats, barley, and grain sorghum converted to corn equivalent. Roughages include alfalfa hay, all other hay, sorghum fodder and silage converted to an alfalfa hay equivalent. Cattle numbers represent cattle other than milk cows.[1]

[1]Kansas Agriculture, Biennial Reports 38, 39, 40, and 41, Kansas State Board of Agriculture.

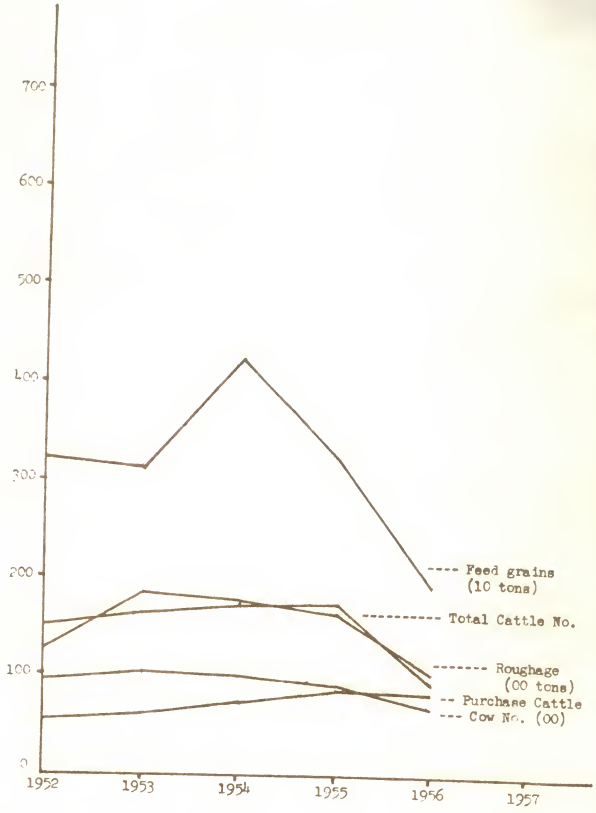

Figure 9. Feed production and cattle numbers as reported by farmers in the schedule from 1952-1956. Roughage includes hay and fodder, and silage. Cattle numbers were taken from the schedules.

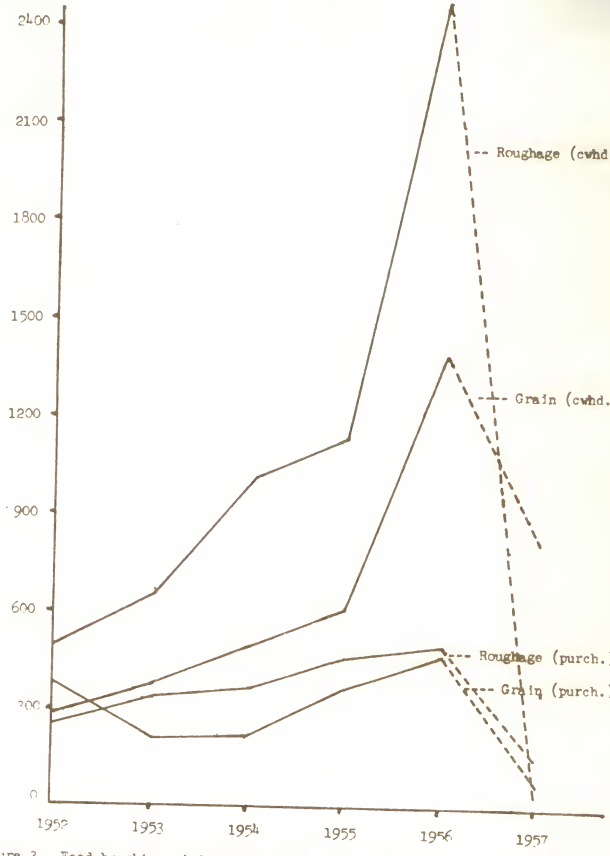

Figure 3. Feed bought as indicated by farmers on schedule. The purchases have been divided between the cowherd and the purchase group.

Table 1. Size of farms of beef cattle systems studied.[1]

Cattle systems during period 1952-1957	Farm Size Av. Acres	Pasture Size Av. Acres	Animal Units Av. No.	Cases Studied
Cowherd systems				
No regular	682	220	26	16
Creep fed	1200	615	61	4
Spring calf off grass (- 100)	1225	576	66	19
Spring calf off grass (100 -)	2991	2092	150	19
Spring calf grazed & wintered	1521	608	78	12
Fall calf off grass	1425	605	82	5
Combinations of above	4334	3206	140	14
Weighted Average	2043.1	1257.7	90.7	
Purchased systems				
Wintering	835	176	39	11
Grazing	1394	804	73	5
Winter and graze	1421	703	68	12
Deferred fed steers	1863	455	66	2
Combinations of above	1505	745	66	16
Weighted Average	1326.5	591.7	60.8	
Mixed system	1235	711	92	4
Changed system group				
Cowherd to purchase	1577	690	73	22
Mixed to purchase	1084	438	68	7
Purchase to cowherd	1720	720	49	1
Mixed to cowherd	8000	7000	200	1
Cowherd to mixed	817	372	70	3
Weighted Average	1433.0	712.7	66.7	

[1]Charles W. Rauhaim, Flexible Livestock Systems, p. 6. Unpublished paper presented, Great Plains Technical Committee Workshop, Lincoln, Nebraska, May 6-7, 1959.

Table 2. The most important problems of handling cattle and how they were ranked by the farmers.

Cattle Systems during period 1952-57	Stable Feed Supply: 1st	2nd	Price Risk: 1st	2nd	Production Problems: 1st	2nd	Labor Supply: 1st	2nd	Obtaining Credit: 1st	2nd	Buying Cattle: 1st	2nd
Cowherd group												
first major system	34	6	13	4	8	7	5	6	-	-	-	-
percent of total	56.6		21.6		13.3		8.4					
last major system	66	7	8	30	8	20	6	9	-	1	-	-
percent of total	75.0		9.1		9.1		6.8					
Purchase group												
first major system	8	3	10	2	8	4	-	-	-	-	4	3
percent of total	26.7		33.3		26.7						13.3	
last major system	20	7	11	7	10	5	-	-	-	-	4	12
percent of total	44.5		24.4		22.2						8.9	
Changed System group												
Changed to purchase												
first major system	11	6	2	-	13	5	1	3	-	-	1	1
percent of total	39.2		7.1		46.4		3.6				3.6	
last major system	15	5	5	8	7	7	-	2	-	22	5	6
percent of total	46.9		15.6		21.9						15.6	
Changed to cowherd												
first major system	4	1	-	1	1	2	1	-	-	-	-	-
percent of total	66.7				16.6		16.6					
last major system	4	1	-	-	1	1	1	-	-	-	-	-
percent of total	66.7				16.6		16.6					

Table 3. Total number of farmers in each group at the beginning of each year.

Cattle System	1952	1953	1954	1955	1956	1957
Cowherd	114	112	109	99	97	95
Purchase	46	49	53	67	58	61
Mixed	10	10	11	7	5	1
No Cattle	3	2	-	-	13	16
Total	173	173	173	173	173	173

Table 4. Number of farmers reporting a reduction in number of animal units of ten percent or greater during the year

Cattle System	1952	1953	1954	1955	1956
Cowherd group	6	9	19	33	58
% of total no. of farmers	5.3	8.0	17.4	33.4	60.0
% of total reductions	4.8	7.2	14.2	26.4	46.4
Purchase group	6	7	11	33	23
% of total no. of farmers	13.0	14.3	20.8	49.2	39.7
% of total no. reductions	7.5	8.7	13.7	41.2	28.7
Mixed group	1	2	-	-	3

Table 5. Number of farmers who changed their system of handling cattle during the drought.

Type of change	1952	1953	1954	1955	1956	Total	% of total
Cowherd to purchased	1	4	7	2	3	17	32.7
Cowherd to mixed	3	3	4	1	1	12	23.1
Purchased to cowherd	-	1	-	1	-	2	3.8
Purchased to mixed	-	-	-	1	-	1	1.9
Mixed to cowherd	2	2	1	2	2	9	17.3
Mixed to purchased	1	1	7	2	-	11	21.2
Total	7	11	19	9	6	52	
Percent of total	13.5	21.2	36.6	17.3	11.5		

Table 6. Number of farmers who entered or left a system during the year.

Cattle system	1952		1953		1954		1955		1956	
	entered	left	entered	left	entered	left	entered	left	entered	left
Cowherd	-	-	-	-	-	-	-	1	-	8
Purchased	2	1	1	-	-	-	-	12	2	6
Mixed	-	-	1	-	-	-	-	-	-	3

Table 7. Number of farmers reporting an increase in animal units of ten percent or greater during the year.

Cattle System	1952	1953	1954	1955	1956	Total
Cowherd group	4	11	20	14	9	58
% of total no. of farmers	3.5	9.8	18.3	14.1	9.3	
% of total increases	7.0	18.9	34.5	24.1	15.5	
Purchase group	7	6	14	18	9	54
% of total no. of farmers	15.2	12.2	26.4	26.9	15.5	
% of total increases	12.8	11.1	25.9	33.3	16.6	
Mixed group	-	4	2	-	-	6

Table 8. Number of farmers making less than ten percent change in animal units and no change in system during the year.

Cattle System	1952	1953	1954	1955	1956	Total
Cowherd group	80	80	59	49	23	291
% of total no. of farmers	70.2	71.4	54.1	49.5	23.7	
% of total no change	27.5	27.5	20.3	16.8	7.9	
Purchase group	23	29	28	14	9	103
% of total no. of farmers	50.0	39.2	52.8	20.9	15.5	
% of total no change	22.3	28.2	27.2	13.6	8.7	
Mixed group	5	2	1	3	-	11
Cannot be determined	34	12	-	-	31	
No cattle	1	-	-	-	4	

Table 9. Reasons given by the cowherd group for decreasing animal units during the year.

Year	No. of Cases	Land	Pasture	Roughage	Grain	Water	Price of Feed	Price of Cattle	Credit
1952	6	-	2	2	2	-	1	-	-
1953	9	-	5	1	1	-	2	-	-
1954	19	1	12	6	4	1	6	-	-
1955	33	1	26	26	17	2	9	-	-
1956	58	1	35	42	25	1	20	1	1
Totals		3	80	77	49	4	38	1	1
% of total		1.2	30.8	29.6	18.7	1.5	14.6	.4	.4

Table 9. (cont.)

Year	Capital	Labor	Ill Health	Animals of low Quality	Disease in Herd
1952	-	-	-	-	-
1953	-	-	-	-	-
1954	-	-	1	-	-
1955	-	-	2	-	1
1956	1	1	-	1	-
Totals	1	1	3	1	1
% of total	.4	.4	1.2	.4	.4

Table 10. Reasons given by the cowherd group for increasing animal units during the year.

Year	No. of Cases	Land	Pasture	Roughage	Grain	Water	Price of Cattle	Rebuild Herd	More Profit	Irrigate	Bad Feed Reserves
1952	4	-	-	-	-	-	-	1	-	-	-
1953	11	-	7	1	-	-	-	1	1	1	1
1954	20	1	4	-	-	-	1	6	1	-	-
1955	14	1	5	-	1	-	-	2	-	-	-
1956	9	2	8	5	2	1	-	1	-	-	-
Totals		4	24	6	3	1	1	11	2	1	1
% of total		7.4	44.6	11.1	5.5	1.8	1.8	20.3	3.6	1.8	1.8

Table 11. Reasons given by the purchase group for decreasing animal units during the year.

Year	No. of Cases	Land	Pasture	Roughage	Grain	Water	Price of Feed	Price of Cattle	Capital	Labor
1952	6	-	2	4	2	-	1	1	-	1
1953	7	1	1	1	1	-	1	2	-	-
1954	11	1	6	5	2	-	3	2	-	-
1955	33	-	11	12	7	1	3	4	2	-
1956	23	1	8	12	6	1	2	2	-	-
Totals		3	28	34	18	2	11	11	2	1
% of total		2.7	25.7	30.9	16.4	1.8	10.0	10.0	1.8	.9

Table 12. Reasons given by the purchase group for increasing animal units during the year.

Year	No. of Cases	Land	Pasture	Roughage	Grain	Price of Cattle	Price of Feed	Restock Herd	Irrigate	More Profit
1952	7	-	-	-	-	-	-	-	-	-
1953	6	-	-	-	-	-	-	-	-	-
1954	14	1	6	3	2	1	-	1	-	-
1955	18	1	4	5	4	1	1	-	2	2
1956	9	1	6	2	-	1	-	-	1	-
Totals		3	16	10	6	3	1	1	3	2
% of total		6.6	35.5	22.2	13.3	6.6	2.2	2.2	6.6	4.4

Table 13. Reasons given for changing from a cowherd toward a purchase group.

Year	No. of Cases	Land	Pasture	Roughage	Grain	Price of Feed	Price of Cattle	More Profit	Disease in Old System	Utilize Feed Eff.	More Versatile
1952	5	-	3	2	1	-	1	1	-	1	1
1953	8	1	2	-	2	2	1	1	3	1	-
1954	18	1	10	7	6	5	1	2	-	2	-
1955	5	1	-	-	-	-	2	-	-	-	-
1956	4	-	-	-	-	-	-	-	-	-	-
Totals		3	15	9	9	7	5	4	3	4	1
% of total		5.0	25.0	15.0	15.0	11.7	8.3	6.7	5.0	6.7	1.7

Table 14. Reasons given for changing from a purchase system toward a cowherd system.

Year	No. of Cases	Land	Pasture	Roughage	Grain	Price of Feed	Price of Cattle	More Profit	Less Speculation
1952	2	-	1	2	1	1	1	-	-
1953	3	-	1	1	1	1	-	1	1
1954	1	-	-	-	-	-	-	-	-
1955	4	2	-	1	1	-	1	1	-
1956	2	-	-	-	1	-	1	1	-
Totals		2	2	4	4	2	3	3	1
% of total		9.6	9.6	19.2	19.2	9.6	14.4	14.4	4.8

Table 15. Reasons for not making a change in system or not making a major change in cattle numbers from 1952 to 1957.

	No. of Cases Reporting	Irrigate	Purchase Feed	Not Operating at capacity	Local Rains	Feed Reserves	Rented Pasture in other areas
Cowherd Group	16	5	3	4	1	1	2
Purchase Group	10	5	2	1	1	-	1
Total	26	10	5	5	2	1	3
% of total		38.4	19.2	19.2	7.7	3.8	11.4

Table 16. Average number of acres of pasture per animal unit.

Beef Cattle Group	1952	1953	1954	1955	1956	1957
Cowherd group						
No regular	5	6	8	8	9	8
Creep fed	10	12	10	9	11	13
Spring Calf off grass (- 100)	7	8	9	8	9	13
Spring calf off grass (100 -)	7	10	10	12	18	18
Fall calf grazed & wintered	6	6	7	8	8	11
Fall calf off grass	9	9	8	8	13	18
Combinations of above	10	12	11	10	18	22
Average of group	7.7	9.0	9.0	9.0	12.2	14.0
Purchase group						
Wintering	4	6	6	7	4	1
Grazing	8	17	17	16	18	11
Winter and graze	7	7	9	10	9	11
Deferred fed steers	8	7	6	6	6	4
Combination of above	13	8	9	8	15	11
Average of group	8.0	9.0	9.4	9.4	10.4	7.6
Changed system group						
Cowherd to purchase	7	8	9	11	14	12
Mixed to purchase	4	8	5	6	5	3
Purchase to cowherd	48	48	23	15	10	12
Mixed to cowherd	37	36	47	35	20	23
Cowherd to mixed	5	5	5	6	7	5
Average of group	20.2	21.0	17.8	14.6	11.2	10.6
Mixed group	6	6	19	9	10	4

Table 17. Can farmers afford to carry a reserve of feed through a period such as 1952-1957.

Beef Cattle Group	Yes	No	Total
Cowherd group	62	27	89
percent of total	69.6	30.4	
Purchase group	30	16	46
percent of total	65.2	34.8	
Changed system group	17	21	38
percent of total	44.7	55.3	

Table 18. Reasons for and conditions under which feed reserves were maintained.

Beef Cattle System	Reasons		Conditions	
	More Profit	Maintain basic herd	If feed can be produced	If storage is available
Cowherd group	11	12	27	5
% of total	20.0	21.8	49.1	9.1
Purchase group	11	-	7	1
% of total	57.8		36.8	5.3
Changed system group	4	4	6	-
% of total	28.6	28.6	42.8	

Table 19. Reasons why feed reserves were not carried through the drought.

Cattle System	Irrigate	Period is too long	Too much spoils	Unable to raise surplus	Buy cattle accord. to feed	More profit to sell surplus
Cowherd group	2	9	3	6	-	6
% of total	7.7	34.6	11.5	23.1		23.1
Purchase group	5	3	-	-	3	3
% of total	35.7	21.4			21.4	21.4
Changed system group	2	5	2	1	-	8
% of total	11.1	27.8	11.1	5.7		44.4

Table 20. Methods used to adjust cattle numbers during the drought period, 1952-1957.

Group and change in animal units	No. of cases	Cull cowherd cleaner than usual		Sell some good cows as well as culls		Sell all of cowherd		Sell cattle at an earlier age or lower weight		Stayed out of cattle market when feed supply was short	
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Cowherd Group											
No change	4	1	1	1	1	0	2	1	1		
Increase	19	9	6	5	9	1	14	3	11		
Decrease	53	47	1	44	4	5	41	17	30		
Sold out	13	7	4	6	4	10	2	3	6		
Total		64	12	56	18	16	59	24	48		
% of Total		84.2	15.8	75.7	24.3	21.3	78.7	33.3	66.7		
Purchase Group											
No change	2									1	-
Increase	9									5	4
Decrease	24									8	9
Sold out	11									9	2
Total										23	15
% of Total										60.5	39.5

[1] Some farmers did not answer every question. The sum of the "yes" and "no" may not be equal to the number in the group.

Table 21. Methods used to adjust feed supply during the drought period 1952-1957.[1]

Changes in group and animal units	No. of cases	Forced to adjust feed supply		Buy additional feed		Rent additional pasture		Additional pasture rented			Use of feed reserves	
								Locally	Outside: Locally and outside of area: outside			
		Yes	No	Yes	No	Yes	No				Yes	No
Cowherd Group												
No change	4			4	-	2	2	-	-	1	3	1
Increase	19			17	2	8	11	7	-	1	13	6
Decrease	53			50	3	8	45	8	2	-	32	19
Sold out	13			11	2	2	11	2	-	-	6	7
Totals	89	87	2	82	7	20	69	17	2	2	54	33
% of total		97.7	2.3	92.1	7.9	22.4	77.6				62	37.9
Purchase Group												
No change	2			1	1	2	-	1	1	-	-	2
Increase	9			4	5	1	8	1	-	-	3	6
Decrease	24			18	6	6	18	5	1	-	15	9
Sold out	11			6	5	2	9	2	-	-	3	8
Totals	46	45	1	29	17	11	35	9	2	-	21	25
% of totals		97.8	2.2	63.0	37.0	23.9	76.1				45.5	54.4

[1]Some farmers did not answer every question. The sum of the "yes" and "no" may not be equal to the number in the group.

Table 21. (cont.)

Group and change in animal units	Sell less feed than normally		Increase acres of feed crops		Grow feed on fallow land instead of cont.		Rent crop aftermath		Irrigate crops	
Cowherd Group	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
No change	1	3	2	2	4	-	-	-	-	-
Increase	11	8	10	8	13	6	1	-	-	-
Decrease	21	32	38	14	28	22	1	-	-	-
Sold out	7	6	8	5	6	7	-	-	2	-
Totals	40	49	58	29	51	35	2	-	2	-
% of total	44.9	55.1	66.7	33.3	59.4	40.6				
Purchase Group										
No change	1	1	-	1	-	1	-	-	-	-
Increase	5	4	4	5	2	7	-	-	-	-
Decrease	11	12	10	13	8	14	2	-	2	-
Sold out	8	3	4	7	3	8	2	-	-	-
Totals	25	20	18	26	13	30	4	-	2	-
% of total	55.6	44.4	40.9	59.1	30.2	69.8				

Table 22. Number and percent of farm operators by tenure status for groups and change in animal units.

Group and change in animal units	Number of Operators				Percent of Operators		
	Owner	Part Owner	Tenant	Total	Owner	Part Owner	Tenant
Cowherd Group							
No change	1	3	-	4	25.0	75.0	-
Increase	6	12	1	19	31.6	63.1	5.3
Decrease	31	20	2	53	58.5	37.7	3.8
Sold out	7	5	1	13	53.8	38.5	7.7
Total	45	40	4	89	50.6	44.9	4.5
Purchase Group							
No change	1	1	-	2	50.0	50.0	-
Increase	6	3	-	9	66.7	33.3	-
Decrease	13	10	1	24	54.2	41.7	4.2
Sold out	7	3	1	11	63.6	27.9	9.1
Total	27	17	2	46	58.7	36.9	4.3
Changed System Group							
Cowherd to Purchase	16	9	4	29	55.2	31.0	13.8
Purchase to Cowherd	0	2	0	2	-	100.0	-
Mixed	1	5	1	7	14.3	71.4	14.3
Total	17	16	5	38	44.7	42.1	13.2

Table 23. Number of operators increasing or decreasing the number of acres farmed 1952-1957 by group and change in animal units.

Group and change in animal units	Increased Acres		No Change		Decrease Acres		Total
	No.	% of total	No.	% of total	No.	% of total	
Cowherd Group							
No change	1	25.0	3	75.0	-		4
Increase	6	31.6	12	63.0	1	5.3	19
Decrease	6	11.3	44	83.0	3	5.7	53
Sold out	1	7.7	11	84.6	1	7.7	13
Total	14	15.7	70	78.6	5	5.6	89
Purchase group							
No change	-		2	100.0	-		2
Increase	2	22.2	7	77.8	-		9
Decrease	4	16.7	19	79.2	1	4.2	24
Sold out	-		11	100.0	-		11
Total	6	13.0	39	84.8	1	2.2	46

Table 24. Number of operators increasing or decreasing acres farmed by tenure status.

Form of Tenure	Increased Acres		No Change		Decreased Acres		Total
	No.	% of total	No.	% of total	No.	% of total	
Cowherd Group							
Owner	5	11.1	38	84.4	2	4.4	45
Part owner	9	22.5	29	72.5	2	5.0	40
Tenant	-	-	3	75.0	1	25.0	4
Total	14	15.7	70	78.6	5	5.6	89
Purchase Group							
Owner	4	14.8	22	81.5	1	3.7	27
Part owner	1	5.9	16	94.1	-		17
Tenant	1	50.0	1	50.0	-		2
Total	6	13.0	39	84.8	1	2.2	46

Table 25. The relationship of the change in animal units to pasture condition for the cowherd group.

Change in animal units	No. of cases	Pasture Condition 1952-1957			
		Excellent	Good	Average	Poor	None
Pasture condition 1952						
Change in A.U.'s 1952-53						
Decrease	6	-	1	3	2	-
Increase	6	-	3	3	-	-
No change	81	-	26	46	9	-
No cattle	0	-	-	-	-	-
Pasture condition 1953						
Change in A.U.'s 1953-54						
Decrease	12	-	4	4	4	-
Increase	15	-	2	10	3	-
No change	80	-	15	49	16	-
No cattle	0	-	-	-	-	-
Pasture condition 1954						
Change in A.U.'s 1954-55						
Decrease	24	-	3	12	9	-
Increase	25	-	2	9	13	1
No change	60	-	7	27	26	-
No cattle	0	-	-	-	-	-
Pasture condition 1955						
Change in A.U.'s 1955-56						
Decrease	35	-	3	15	15	2
Increase	15	-	2	5	8	-
No change	49	-	1	21	25	2
No cattle	0	-	-	-	-	-
Pasture condition 1956						
Change in A.U.'s 1956-57						
Decrease	60	-	1	5	47	8
Increase	9	-	-	-	7	2
No change	24	-	-	4	19	1
No cattle	1	-	-	-	-	1

Table 26. The relationship of the change in animal units and pasture condition for the purchase group.

Change in animal unit	No. of cases	Pasture Condition 1952-1957			
		Excellent	Good	Average	Poor	None
			Pasture condition 1952			
Change in A.U.'s 1952-53						
Decrease	4	-	-	3	1	-
Increase	9	-	5	3	1	-
No change	27	-	11	15	1	-
No cattle	0	-	-	-	-	-
			Pasture condition 1953			
Change in A.U.'s 1953-54						
Decrease	6	-	1	3	2	-
Increase	13	-	3	6	4	-
No change	43	-	18	22	3	-
No cattle	2	-	1	1	-	-
			Pasture condition 1954			
Change in A.U.'s 1954-55						
Decrease	10	-	2	4	4	-
Increase	14	-	2	8	4	-
No change	27	-	6	13	8	-
No cattle	0	-	-	-	-	-
			Pasture condition 1955			
Change in A.U.'s 1955-56						
Decrease	34	-	4	10	19	1
Increase	19	-	1	9	9	-
No change	14	-	4	4	6	-
No cattle	0	-	-	-	-	-
			Pasture condition 1956			
Change in A.U.'s 1956-57						
Decrease	19	-	2	1	14	2
Increase	10	-	1	1	8	-
No change	9	-	1	2	6	-
No cattle	8	-	-	-	6	2

Table 27. Number of farmers irrigating feed crops by group and change in animal units.

Group and change in animal units	Farmers Reporting	No. farmers who irrigated	% of farmers reporting who irrigated
Cowherd group			
No change	4	2	50.0
Increase	19	7	36.8
Decrease	53	10	18.8
Sold out	13	2	15.4
Total	89	21	23.6
Purchase group			
No change	2	-	-
Increase	9	7	77.7
Decrease	24	4	16.6
Sold out	11	3	27.3
Total	46	14	30.4
Mixed group	4	1	25.0
Changed System group			
Cowherd to purchase	22	6	27.3
Mixed to purchase	7	2	28.6
Purchase to cowherd	1	-	-
Mixed to cowherd	1	-	-
Cowherd to mixed	3	1	33.3
Total	34	9	26.5

Table 28. Age of operator related to group and changes in number of animal units made during the drought period.

Group and change in animal units	No. of cases	-34	35-50	50-65	65-
Cowherd group					
No change	4	1	1	2	-
Increase	19	-	9	9	1
Decrease	53	4	18	21	10
Sold out	13	-	7	3	3
Total	89	5	35	35	14
Purchase group					
No change	2	-	1	-	1
Increase	9	-	4	4	1
Decrease	24	-	12	10	2
Sold out	11	3	4	2	2
Total	46	3	21	16	6
Mixed group	4	1	1	1	1
Changed System group					
Cowherd to purchase	22	3	13	11	2
Mixed to purchase	7				
Purchase to cowherd	1	-	1	1	-
Mixed to cowherd	1				
Cowherd to mixed	3	1	1	1	-
Total	34	4	15	13	2

Table 29. Education of farm operators by group and change in the number of animal units.

Group and changes in animal units	No. of cases	Graduated from high school		Graduated from business school		College education					
		Yes	No	Yes	No	None	1 yr.	2 yr.	3 yr.	B.S.	M.S.
Cowherd Group											
No change	4	2	3	-	5	5	-	-	-	-	-
Increase	19	11	5	1	15	9	-	5	1	-	1
Decrease	53	31	26	2	55	45	2	6	1	3	-
Sold out	13	5	6	-	11	7	2	2	-	-	-
Total	89	49	40	3	86	66	4	13	2	3	1
% of total		55.1	44.9	3.4	96.6	74.1					
Purchase Group											
No change	2	-	1	-	1	1	-	-	-	-	-
Increase	9	5	6	1	10	8	1	-	-	1	1
Decrease	24	12	10	1	21	16	-	2	2	2	-
Sold out	11	8	4	-	12	9	-	1	1	1	-
Total	46	25	21	2	44	34	1	3	3	4	1
% of total		54.3	45.7	4.4	95.6	73.9					
Changed System Group	38	24	14	2	36	22	4	5	3	3	-
% of total		65.8	34.2	5.3	94.7	60.5					

Table 30. Operators experience with a beef system related to changes in animal units during the period 1952-1957.

Group and changes in animal units	No. of cases	Years of Experience			
		0-15	15-30	30-45	45-
Cowherd group					
No change	4	1	-	3	-
Increase	19	4	7	7	1
Decrease	53	11	13	21	8
Sold out	13	1	7	3	2
Total	89	17	27	23	11
Purchase group					
No change	2	-	-	1	1
Increase	9	2	3	4	-
Decrease	24	5	11	5	3
Sold out	11	4	4	1	2
Total	46	11	18	11	6
Mixed group	4	-	2	2	-
Changed System group					
Cowherd to purchase	22				
Mixed to purchase	7	5	11	10	3
Mixed to cowherd	1				
Purchase to cowherd	1	-	1	-	1
Cowherd to mixed	3	-	2	-	1
Total	34	5	14	10	5

Table 31. Reasons for keeping the cowherd through a drought period.

Group and change in animal units	To costly to rebuild herd	Cows valuable later	If adequate feed reserves	If feed is irrigated	But reduce number	Profitable in long run
Cowherd group						
No change	11	4	6	3	4	3
Increase	-	1	1	-	1	-
Decrease	4	-	-	1	-	1
Sold out	5	3	3	-	-	-
Total	20	8	10	4	5	4
% of total	39.2	15.7	19.6	7.8	9.8	7.8

Table 32. Reasons for not keeping the cowherd through a drought period.

Group and change in animal units	No. of cases	Not Profitable	Cowherd not flexible	If reserve of feed is low
Cowherd group				
No change	4	20	1	1
Increase	19	1	-	-
Decrease	53	7	-	-
Sold out	13	8	-	-
Total	89	36	1	1
% of total		94.7	2.6	2.6

Table 33. The principal reasons why farmers keep cowhers.

Beef cattle group	Utilize pasture, roughage	Obtain credit	Exp. in cow herd	Less price risk	No problem buying cattle	Source of cash	Personal preference	More profit	Don't realize cost	Requires less labor
Cowherd Group										
Total no. times ranked first	14	3	5	32	14	9	5	2	2	1
% of total	16.1	3.4	5.7	36.8	16.1	10.3	5.7	2.3	2.3	1.1
Total no. of times ranked second	14	8	15	24	15	7	-	-	1	-
% of total	16.6	9.5	17.8	20.6	17.8	8.3			1.2	

Table 34. The principal reasons why farmers purchase their cattle.

Beef cattle group	More profit	Feed shortage	Personal preference	Versatile program	Disease in cowherd	Less labor
Purchase Group						
Total no. times ranked first	21	18	2	2	-	-
Percent of total	48.8	41.9	4.7	4.7		
Total no. times ranked second	3	9	7	1	-	1
Percent of total	14.3	42.9	33.3	4.8		4.8
Changed system group (cowherd to purchase)						
Total no. times ranked first	9	12	-	-	-	2
Percent of total	39.1	52.2				8.7
Total no. times ranked second	-	2	-	1	2	-
Percent of total		40.0		20.0	40.0	

THE EFFECTS OF THE DROUGHT ON THE BEEF ENTERPRISE IN WESTERN KANSAS, 1950-1957

by

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This study is an analysis of the comparative behavior of farmers having the cowherd type beef system and the farmers having the purchased type beef system during a drought. The survey was made in 1957, and covered the drought period, 1952-1957.

The effect of the drought was to greatly decrease feed production. Under these conditions the farmers were forced to adjust feed supply to meet the needs of the system or to adjust the cattle numbers to meet feed supply. Most farmers used both types of adjustments. There are various methods of adjusting the feed supply or cattle numbers. All of these adjustments were made at a cost to the farmer. The farmers problem was to make the adjustment in such a way as to produce the necessary effect at least cost.

The objectives were (a) to determine the changes made in cattle numbers by farmers in the two major cattle systems during the drought period 1952-1957, (b) to determine the principal reasons causing the changes in cattle numbers, and (c) to determine why farmers choose a particular type of beef system.

The hypothesis was that the cowherd system was less flexible, a tendency to make fewer adjustments in cattle numbers, than the purchased group. The cowherd group would attempt to adjust feed supply to cattle numbers while the purchased group would adjust cattle numbers to feed supply.

This study did not lend itself to a static analysis. The fluctuation in yields of feed crops resulted in different adjustments by the two principal groups.

The cowherd group, in any given year, made fewer major changes in their cattle numbers than did the purchased group. The major portion of the reductions in cattle numbers within the cowherd group occurred in 1956. In 1955 more farmers in the purchased group reduced cattle numbers than in any other

year. The purchased group made more major changes, either increasing or decreasing, during any year than did the cowherd group. With the exception of 1956 when 60 percent of the cowherd group made a major reduction and only 39.7 percent of the purchased group made a major reduction. The purchased group responded sooner to the acute feed problem than did the cowherd group.

Maintaining a stable feed supply was the major problem for all farmers during the drought. It was a greater problem for the farmers having cowherds than to the farmers who purchased cattle. Most farmers used several methods in an effort to adjust or stabilize feed supply. Farmers with cowherds used more methods than did the farmers with the purchased cattle.

The principal reasons given by the cowherd group for decreasing cattle numbers were pasture condition, feed supply and the price of feed. The principal reasons given by the purchase group for decreasing cattle numbers were pasture, feed supply, price of feed and the price of cattle. The principal reasons given by the cowherd group for increasing cattle numbers were pasture, feed supply and the desire to restock the herd. The principal reasons given by the purchased group for increasing cattle numbers were pasture, feed supply and the price of cattle.

During the drought, 34 farmers changed from one principal group to another. Some farmers made more than one change. Seventy-six percent of the farmers sold their cowherd and began purchasing their cattle. Twenty-four percent of the farmers left the purchased group and initiated a cowherd type system. The major reason for causing a change in the system of handling cattle was the feed supply.

The cowherd system tends to be less flexible because theirs is a relatively long run investment. It is based upon the expected returns from the sale of

calves. To liquidate the investment during a drought period would be selling it at an unfavorable price and before all the returns had been realized. The purchased system is more flexible because the farmers have the opportunity to reinvest every year. The investment is based upon the expected profits when the animal is sold. Feed supply will affect the profitability and therefore the purchased group has more of a tendency to adjust cattle numbers to the feed supply.

Farmers had a variety of reasons for choosing a particular beef system. The purchased system was considered the most profitable, but it also entailed the greatest price risk. It also presented less of a feed problem. The cow-herd group was considered less profitable, but there was less price risk associated with it. It also presented the greater feed problem but it presented no problem of buying cattle.